Community-based sea-ice observations in Alaska: From the ice into the computer and back

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Seasonal Ice Zone Observing Network (SIZONet)

Contributes to Sea Ice Knowledge and Use (SIKU)
Observations Program Overview

- Began Fall 2006
- Daily logs from Barrow, Wales, Gambell, Toksook Bay
- Observer guided content / format
- Annual ice cycle, ice-related activities, hazards, subsistence efforts, weather
- Reflections on changes compared to past
- Collected in database housed at UAF

- Improve our understanding of ice use by coastal communities
- Explore how geophysical datasets can compliment local knowledge
- Provide useful information back to the communities
- Create an archive for future generations
Database Development

Requirements:
- Retain contextual meaning
- Searchable
- Observer feedback & involvement

Our approach:
- Defined categories based on observations we receive
- Evolving

Currently houses 3000+ records
Moving Online

- Make data more accessible to stakeholders
- Include communities in database management (through data entry, direct & timely feedback)
- Towards goal of sustaining program into the future

- Based on MS Access database structure
- Developed by the ELOKA team
- Multiple levels of access through secured login
- Available to the public
- Access via ELOKA website
- Housed at NSIDC
## Search Results

Showing observations 1 - 8 of 8

<table>
<thead>
<tr>
<th>Date</th>
<th>Observer</th>
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<th>Transcript All details</th>
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The SIZONet Observation Database is a collaborative between SIZONet and FLOKA. This website is hosted by the National Snow and Ice Data Center.
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*Transcript:*

Skies are obscured by snow, winds light from the SE at 5, temp 20 F, visibility 1/2 mile. There is an accumulation of about 3 inches of new snow on the ground. The edge of the shore fast ice is not visible. There are some flat areas of new ice on the newly formed shorefast ice that may provide good fishing spots soon. 1:30 P.M. Visibility improved with a break in the snow showers. No open water except for small ponds along the edge of the shorefast ice. Lots of pack ice in the strait.
Observation Details

Sea ice observations
- Ice type: Frazil ice
- Ice type: Pancake ice
- Shorefast ice condition: Shorefast ice destabilized by swells/tide
- Ice feature: High water/Overflow
- Pack ice condition: Pack ice opened up by swells
- Ice cycle: Start of sea ice melt
- Ice concentration: Ocean ice covered/No open water

Weather
- WindDirection: N
- Sky: Overcast
- Precipitation: Snow

Game and Wildlife
- Seal

Local Observations
Seasonal Ice Zone Observation Network (SIZONet)

Exchange for Local Observations and Knowledge of the Arctic (ELOKA)

Log in as Joe Leavitt | Log out

Observation ID: WALWE0712301500
Observer: Winton Weyapuk Jr. (Wales)
Date: 2007-12-30
Time: 03:00 PM
Observation location: Wales

NEW SEARCH
## Online Database: Data entry

### Local Observations
Seasonal Ice Zone Observation Network (SIZONet)

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<td>Location:</td>
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<tr>
<td>Observation time:</td>
<td>00:30 (hh:mm)</td>
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### Observation text:

This observation has instructional or didactic value for students or other novices: [ ]

Save new observation

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The SIZONet Observation Database is a collaborative between SIZONet and ELOKA. This website is hosted by the National Snow and Ice Data Center.
Observation ID: BARLE1111130000
Recorder: Joe Leavitt

Observer: Joe Leavitt
Location: Barrow

observation date: 2011-11-13
(yyyy-mm-dd)

Observation time: 00:00 (hh:mm)

Ice Features:
- Frazil ice
- Pancake ice
- First year ice only
- Multiyear ice in sight
- Young ice floes in sight
- Large ice floes in sight
- Refrozen leads/ponds

Ice Type:
- Young ice beginning to form along beach
- Shorefast ice growing/extending out
- Shorefast ice is thickening
- Shorefast ice is grounded
- Shorefast ice is not grounded
- Shorefast ice not well grounded
- Shorefast ice is rough
- Waves breaking along edge of shorefast ice
- High water / Overflow

Shorefast Ice:
Annual Cycle:
Lead Condition:

Pack Ice:
- Pack ice visible from shore
- Moderately heavy pack ice visible from shore
- Heavy pack ice visible from shore
- Pack ice pushed against shore
- Pack ice pushed against shorefast ice
- Lead closed by pack ice
- Some pack ice is grounded
- Scattered floes
- Pack ice is moving

Dark sky visible: 
Direction of ice movement:
Distance to lead: approximately
Shorefast ice thickness: approximately
Distance to the pack ice: approximately

Update observation
Online Database

- Currently in data migration and test phase
- Observer review and feedback next
- Operational product soon

Challenges

- Retain contextual meaning when categorizing observations
- Finding support beyond SIZONet
Thanks & Appreciation to

SEA ICE EXPERTS & COMMUNITIES

- Leonard Apangalook, Sr. (Gambell)
- Winton Weyapuk, Jr. (Wales)
- Joe Leavitt (Barrow)
- Paul Apangalook (Wales)
- Simeon John (Toksook Bay) and others

COLLABORATORS & ADVISORS

- Igor Krupnik (Smithsonian Institution)
- Matt Druckenmiller (Formerly UAF, now NSIDC)
- ELOKA & NSIDC
- NSF funding through SIZONet